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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/604,201	06/30/2003	Gaurav Sharma	114790	1200

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EXAMINER	
HUNG, YUBIN	
ART UNIT	PAPER NUMBER
2624	

NOTIFICATION DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/604,201	SHARMA ET AL.	
	Examiner	Art Unit	
	YUBIN HUNG	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 March 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-11 and 41-49* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-11 and 41-49* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *15 October 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 03/28/08 has been entered.

Response to Amendment/Arguments

2. Claims 12-40 have been canceled and 41-49 have been added; currently claims 1-11 and 41-49 are still pending.

3. In view of Applicant's amendment, the objection to the specification has been withdrawn.

4. Applicant's amendments have rendered moot the 35 USC § 103 rejections of claims 1-11. However, upon further consideration, a new ground(s) of rejection is made in view of Toyoda et al. (US 2003/0067616); see detailed action below.

DETAILED ACTION

Claim Rejections - 35 USC § 112

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 1-11 and 41-49 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

8. Specifically, claim 1 recites “the color calibration profile” in the last line. Since there are more than one color calibration profile, it is not clear which one is being referred to. Therefore the mete and bound of the claim cannot be ascertained. Claims 2-11 and 41-49 are similarly rejected per dependency.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. Claims 1 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tashiro et al. (US 5,748,773), and further in view of Toyoda et al. (US 2003/0067616).

11. Regarding claim 1, Tashiro discloses

- scanning the printed image to generate scanned image data
  [Abstract; Ref. 1022 of Figs. 2 & 3 (scanner); Col. 5, lines 50-54]
- determining a spatial characteristic of the printed image from the scanned image
  [Fig. 2, ref. 38; Fig. 8, refs. S1 & S2; Col. 6, lines 37-41 (note that the histogram is formed using both the luminance and the chrominance information); Col. 7, lines 66-67; Col. 9, lines 39-50]
- comparing the spatial characteristic of the scanned printed image with spatial characteristic associated with color calibration profiles
  [Fig. 8, ref. S3; Fig. 11, refs. S31-S33; Col. 10, lines 9-19. Note that hmax, lmax, lmin lpeak, HLIM, ILIM and IWLIM are spatial characteristics that are used in the comparison]
- selecting one or more color calibration profiles based on the comparison of the spatial characteristics
  [Fig. 8, ref. S3; Fig. 11; Figs. 12-14 (conversion tables, or profiles, selected based on comparison result); Col. 11, lines 12-53]

Tashiro does not expressly disclose the following, which is taught by Toyoda:

- the color calibration profile alters a chrominance value
  [Fig. 12; paragraphs 71-74. Note that all R, G an B components are altered and therefore the chrominance value, in addition to luminance, is also altered]

At the time of the invention it would have been obvious to one of ordinary skill in the art to modify Tashiro with the teachings of Toyoda as recited above to obtain the invention as specified in claim 1. The reasons for doing so at least would have been to overcome the problems with color reproduction in an efficient manner as Toyoda indicates in paragraphs 9-11.

12. Regarding claim 9, Tashiro further discloses that the selection of one or more color calibration profiles is made automatically [Fig. 8, ref. S3; Fig. 11; Figs. 12-14; Col. 11, lines 12-53]

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13. Claims 2, 3, 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tashiro et al. (US 5,748,773) and Toyoda et al. (US 2003/0067616) as applied to claims 1 and 9 above, and further in view of Kasutani (US 7,236,652) and Sampath et al. (US 6,665,425).

14. Regarding claim 2, the combined invention of Tashiro and Toyoda discloses all limitations of its parent, claim 1, in particular, the comparison of spatial characteristics, but not expressly the following:

- wherein the spatial characteristics associated with color calibration profiles are determined from scans of color characterization targets used in creating the color calibration
profiles

However, Kasutani discloses associating the feature vector (i.e., characteristics that can be used to identify the image) determined from an image with that image [Fig. 1, refs. 102, 103, 202 & 203; Col. 12, lines 24-34] and Sampath discloses using test patterns (color characterization targets) to calibrate a document processing system [Fig. 1, refs. 110 & 120; Fig. 10, refs. S150, S180 & S230; Col. 2, lines 59-63; Col. 6, line 60-Col. 7, line 7; Col. 11, lines 23-46]. Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the combined invention of Tashiro and Toyoda with the teachings of Sampath and Kasutani as recited above to obtain the invention as specified in claim 2. The reasons for doing so at least would have been to be able to calibrate the system to properly process the data having the same characteristics as the test patterns, as well as to select the most suitable profile (using the characteristics) derived from the image (of a target) so that the system can be properly calibrated for the kind of data to be processed.

15. Regarding claim 3, note that per the analysis of claim 2, the test pattern used for quality assessment in order to perform calibration as required is analyzed first to generate data (including spatial characteristics) [Sampath: Col. 6, line 60-Col. 7, line 6] in one diagnostic routine [Sampath: Fig. 10], i.e., at the same time. (Note that to perform the calibration it would have been necessary to also generate required data such as a color characterization profile.)

16. Regarding claims 6 and 7, Kasutani further discloses

- (claim 6) wherein the comparing comprises computation of a distance measure between the spatial characteristic of the image and the spatial characteristics associated with the color calibration profile
  (claim 7) wherein the selecting further comprises choosing one or more color calibration profiles which are closest with respect to the distance measure
  [Fig. 1, ref. 109; Col. 13, lines 27-33]

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17. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tashiro et al. (US 5,748,773), Toyoda et al. (US 2003/0067616), Kasutani (US 7,236,652) and Sampath et al. (US 6,665,425) as applied to claims 2, 3, 6 and 7 above, and further in view of TIFF6 (TIFF Revision 6.0, June 03, 1992, pp. 8, 9, 13-16).

18. Regarding claims 4 and 5, the combined invention of Tashiro, Toyoda, Kasutani and Sampath discloses all limitations of their parent, claim 3 but not the following:

- (claim 4) wherein the spatial characteristics associated with the color calibration profiles are stored with the color calibration profiles
- (claim 5) wherein the spatial characteristics associated with a color calibration profile are stored within private tags in the color calibration profile

However, TIFF teaches using a data structure that has private tags for storing special data (e.g., the spatial characteristics recited in the claim), along with the main data (e.g., the profile). It therefore would have been obvious to one of ordinary skill in the art to modify the combined invention of Tashiro, Toyoda, Kasutani and Sampath with the teachings of TIFF6 as recited above to obtain the inventions as specified in claim 4 and 5. The reasons at least would have been to have the profile to be readily available (and

therefore improves processing efficiency) when it is selected (by comparison of the associated spatial characteristics), as well as to allow applications not having the ability to use the spatial characteristics to ignore them since they are only meaningful to the inventive entity, as indicated in TIFF6, P. 8 (regarding private fields).

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19. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tashiro et al. (US 5,748,773) and Toyoda et al. (US 2003/0067616) as applied to claims 1 and 9 above, and further in view of Chen (US 6,941,121) and Maeda et al. (US 5,682,466).

20. Regarding claim 10, the combined invention of Tashiro and Toyoda discloses all limitations of its parent, claim 1 but not the following:

- wherein selecting one or more color calibration profiles is performed by blending multiple color calibration profiles using at least weighting factors determined from said comparison of the spatial characteristics of the spatial characteristic of the scanned image with the spatial characteristics associated with the color calibration profiles

However, Chen teaches using weighted combination of lookup tables for calibration [Col. 11, lines 59-67] and Maeda further teaches having the weights determined by similarity (inherently resulted from a comparison) [Fig. 7, ref. 708; Col. 9, line 55-Col. 10, line 16].

Therefore it would have been obvious to one of ordinary skill in the art to modify the combined invention of Tashiro and Toyoda with the teaching of Chen and Maeda as recited above to obtain the invention as specified in claim 10. The reasons would at least have been to reduce sensitivity to the comparison result (which is well known to have built-in uncertainty), as indicated by Chen in Col. 10, lines 66-67 (the uncertainty in that case being the transient fluctuations); having weights depending on the similarity also can improve the accuracy, as Maeda indicates in Col. 10, lines 11-15.

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21. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tashiro et al. (US 5,748,773) and Toyoda et al. (US 2003/0067616) as applied to claims 1 and 9 above, and further in view of Newman (US 6,603,483) and Milton et al. (US 2003/0117639).

22. Regarding claim 11, the combined invention of Tashiro and Toyoda discloses all limitations of its parent, claim 1 but not the following:

- wherein selecting one or more color calibration profiles comprises: automatically processing a group of pre-selected color calibration profiles to generate candidate color calibration profiles; and manually selecting one or more color calibration profiles from the candidate color profiles

However, Newman teaches having a user select a profile from a list [Fig. 5A, ref. 501; Col. 11, lines 20-25] and Milton further teaches selecting candidate profiles from a

known (i.e., pre-selected) profiles [Fig. 7a, refs. 500 (known profiles) & 514 (select candidates); P. 9, paragraph 68].

Therefore it would have been obvious to one of ordinary skill in the art to modify the combined invention of Tashiro and Toyoda with the teaching of Newman and Milton as recited above to obtain the invention as specified in claim 11. The reasons at least would have been to satisfy the user's desire [Newman: Col. 11, lines 23-25], as well as to be more precise in the selection of the profiles to use [Milton: Paragraph 68, last 3 lines].

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23. Claims 8, 41, 48 and 49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tashiro et al. (US 5,748,773) and Toyoda et al. (US 2003/0067616) as applied to claims 1 and 9 above, and further in view of Sindhu et al. (US 6,175,650).

24. Regarding claim 8, the combined invention of Tashiro and Toyoda discloses all limitations of its parent claim 1 but not expressly the following, which is taught by Sindhu:

- statistically analyzing the scan of the printed image and determining spatial variations in the printed image based at least on the results of the statistical analysis of the scanned image data [Fig. 4, ref. 406F and Col. 7, lines 25-67; Figs. 8a-8d and Col. 7, line61-Col. 11, line 48; note that both row texture and column texture, from which a histogram of texture (the spatial characteristic) is built, are based on a positioning of at least one pixel relative to another pixel and represent a form of spatial variation]

At the time of the invention it would have been obvious to one of ordinary skill in the art to modify Tashiro and Toyoda with the teachings of Sindhu as recited above to obtain the invention as specified in claim 8. The reason for doing so at least would have been because identifying image type by using texture is reliable over a very wide class of images and is simple enough that most of it can be implemented in hardware, as Sindhu indicates in Col. 7, lines 63-67.

Regarding claims 41, and similarly claims 48 and 49, Sindhu further discloses

- wherein determining the spatial characteristic of the printed image is based on a positioning of at least one pixel relative to another pixel

  [Figs. 8a-8d and Col. 7, line 61-Col. 11, line 48; note that both row texture and column texture, from which the histogram is built, are based on a positioning of at least one pixel relative to another pixel, as is clear from Figs. 8b & 8c]

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25. Claims 42-47 are rejected under 35 U.S.C. 103(a) as being unpatentable over the references as applied to their respective parent claims above, and further in view of Sindhu et al. (US 6,175,650).

26. Regarding claims 42, and similarly claims 43-47, Sindhu further discloses their respective additional limitation

- wherein determining the spatial characteristic of the printed image is based on a positioning of at least one pixel relative to another pixel

  [Figs. 8a-8d and Col. 7, line 61-Col. 11, line 48; note that both row texture and column texture, from which the histogram is built, are based on a positioning of at least one pixel relative to another pixel, as is clear from Figs. 8b & 8c]

At the time of the invention it would have been obvious to one of ordinary skill in the art to modify Tashiro and Toyoda with the teachings of Sindhu as recited above to obtain the invention as specified in claim 42. The reason for doing so at least would have been because identifying image type by using texture is reliable over a very wide class of images and is simple enough that most of it can be implemented in hardware, as Sindhu indicates in Col. 7, lines 63-67.

Conclusion and Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to YUBIN HUNG whose telephone number is (571)272-7451. The examiner can normally be reached on 7:30 - 4:00. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew C. Bella can be reached on (571) 272-7778. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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May 4, 2008